Urbana of the late 1950s – early 1960s became a birthplace of three cross-disciplinary projects the influence of which spans well beyond UIUC: Experimental Music Studios, or EMS (1958), Biological Computer Laboratory, BCL (1958-74), and the PLATO project (1960–the 1990s.) The core trait connecting all three is their relationship to experimental and electronic music: while EMS was an incubator for early compositional and technological innovations, BCL provided theoretical backbone for musical explorations of the fellow faculty, and PLATO – the pioneering center of developments in computer education in the US, nurtured adjacent CERL Music Project in the 1980-90s. The latter took up the baton from EMS in instrument design, which unlike analog constructions of the 1960s, were digital, and endorsed principles developed by cyberneticians.

Among the many composers, innovators, scientists, and scholars associated with the three projects, David Rosenboom stands out for his role in linking each of the three distinct centers of electronic music at UIUC, and in connecting the emerging "Urbana School" of experimental electronic music with centers of collaboration between arts and sciences on both US coasts. While a music student at UIUC in 1965-67, David Rosenboom, guided by Lejaren Hiller, Kenneth Gaburo, Salvatore Martirano, and influenced by cybernetics, received his first exposure to new electronic mediums – that eventually became a driver in his lifelong pursuit of a boundaryless music and artscience practice that unites vision with materialization and creates experiences that promote open exploration and discovery for all audiences.

In the late 1960s, he worked in SUNY Buffalo, collaborated with Morton Subotnick while being Artistic Coordinator New York's Electric Circus – a venue for avant-garde art and intermedia performance. Subotnick, founder of the first electronic music center on the West Coast (*San Francisco Tape Music Center*, 1961), was not the only person Rosenboom adds to the network via his artistic profile. While on the East Coast he collaborated with members of *New York School* associated with Morton Feldman, John Cage and members of Fluxus. Moving in the early 1970s to Canada to found an experimental music center at York University[1] Rosenboom facilitated exchange between the US and Canada inviting a number of experimental composers from all regions discussed to teach new music[2]. Moving back to the US in 1979 since he taught at Mills College (1979-1990) and then at CalArts where he was dean of the School of Music for 30 years (1990-2020.)

Creative work of David Rosenboom, inspired by science and manifested with compositional toolkit, outlines seminal ways of pushing further frontiers of human knowledge while not being bound by disciplinary conventions. In such way, his self-organizing neuromusical work *On Being Invisible* (1977) presents a partial model of raw sound perception and pattern detection makes predictions about what kinds of changes in an algorithmically generated soundscape will be perceived, consciously or unconsciously, as parsing points in how the listening performer organizes sonic experience. Movement III of another work called *Zones of Influence*

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[1] 1970 – 1979 co-founder of the Department of Music and Interdisciplinary Graduate Studies Programme at York University in Toronto

[2] Larger movement in 20th-century music

(1984-85) draws from quantum uncertainty to create probability rhythm cycles. The performer interacts with these cycles in a way that determines whether certain performing actions will or will not trigger significant changes in a complex, electronic soundscape. In Rosenboom's recent string quartet, *Quartet for the Beginning of a Time* (2019), ideas and questions about cosmological evolution, the nature of beginnings, cycles of time, and qualities of change served to inspire the quartet's musical form. The composition's structure functions as a metaphor for the idea of a universe collapsing and a new universe beginning in a way that retains information from the previous universe[3].

Aside from converging arts and sciences in his compositional work, Rosenboom applied ideas from multiple disciplines designing new software and hardware. Starting in the late 1970s, through the 1980s, and into the early 1990s, Rosenboom and collaborators, Larry Polansky and Phil Burk, developed a computer language for real-time, experimental composition and performance, called *HMSL (Hierarchical Music Specification Language).* Of particular importance to the uniqueness of this language was the fact that it drew heavily from theories about how the brain organizes raw, time-based, sound materials into hierarchical units in memory, through what is termed temporal gestalt perception. HMSL enabled its users to organize components of musical forms in similar ways. Rosenboom first implemented an early version of HMSL in a pioneering, computer-based keyboard instrument designed in collaboration with electronic instrument designer, Donald Buchla.

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[3] Mathematical physicist, Roger Penrose, explores this in his book *Cycles of Time*.